WinFast® K7N415DA/420DA

Socket A Motherboards

User's Manual

Leadtek®

We Make Dreams a Reality

Leadtek Research Inc.

Copyright © 2002 by Leadtek Research Inc. All rights reserved.

No part of this document may be copied or reproduced in any form or by any means without the prior written consent of Leadtek Research Inc.

Leadtek makes no warranties with respect to this documentation and disclaims any implied warranties of merchantability, quality, or fitness for any particular purpose. The information in this document is subject to change without notice. Leadtek reserves the right to make revisions to this publication without obligation to notify any person or entity of any such changes.

WinFast® is a registered trademark of Leadtek Research Inc. Other trademarks or brand names mentioned herein are trademarks or registered trademarks of their respective owners.

Leadtek Research Inc.

International Headquarters
18th Fl., 166, Chien-Yi Rd., Chung Ho
Taipei Hsien, Taiwan (235)
Phone: +886 (0)2 8226 5800
Fax: +886 (0)2 8226 5801
http://www.leadtek.com.tw
Email: service@leadtek.com.tw

Leadtek U.S.A.
46732 Lakeview Blvd.
Fremont, CA94538, U.S.A.
Phone: +1 510 490 8076
Fax: +1 510 490 7759
http://www.leadtek.com

Leadtek Research Europe B.V.
Antennestraat 16 1322 AB
Almere, The Netherlands
Phone: +31 (0)36 536 5578
Fax: +31 (0)36 536 2215
http://www.leatek.nl

WinFast® K7N415DA/420DA User's Manual
Version A **CODE: LR5920/LR5925**
March 2002 **P/N: W0500566**

Table of Contents

1. Introduction 1

1.1 Package Content 1
1.2 Specifications 2

2. Quick Setting 3

2.1 Jumper Position 3
2.2 Jumper/Connector Listing 4
2.3 Jumper Settings 5

3. Hardware Setup 6

3.1 CPU Installation 6
3.2 Memory Installation 6
3.3 AGP Display Adapter Installation 7
3.4 Connecting Instructions 7

4. BIOS Setup 11

4.1 Main Menu 12
4.2 Standard CMOS Features 12
4.3 Advanced BIOS Features 15
4.4 Advanced Chipset Features 17
4.5 Integrated Peripherals 18
4.6 Power Management Setup 21
4.7 PnP/PCI Configurations 23
4.8 PC Health Status 24
4.9 X-BIOS 25
4.10 Load Basic Defaults 26
4.11 Load Best Defaults 26
4.12 Set Supervisor/User Password 26
4.13 Save & Exit Setup 27
4.14 Exit Without Saving 27

5. Driver Installation 28

5.1 Under Windows ME/2000/XP 28

5.2 Under Windows 98 29

5.2.1 Installing Chipset Driver 29

5.2.2 Installing LAN Driver 36

5.2.3 Installing Audio Driver 39

5.2.4 Installing VGA Driver (For WinFast K7N420DA only) 42

5.3 Installing DirectX 8.1 45

5.4 Installing Acrobat Utility 45

6. Speed Gear Operation 46

7. Appendix 48

7.1 BIOS Flash Utility 48

7.2 Troubleshooting Procedures 49

7.3 Troubleshooting Flowchart 50

7.4 Technical Support 51

7.5 FCC Statement 51

7.6 Limited Warranty 52

1. Introduction

WinFast® K7N415DA/420DA is a compelling Desktop solution as a Socket A/AMD Athlon, Athlon XP, Athlon, and Duron-based ATX motherboard

WinFast K7N415DA/420DA, integrating nForce 415D/420D chipset, supports the AMD Athlon processor whose performance is bound to exceed expectation of both consumer and corporate users alike. The WinFast K7N415DA/420DA also supports a 200/266 MHz system bus, PC2100 and PC2700 DDR memories, and the latest graphics devices through the AGP 2.0 4X interface; and allows a direct connection to the graphics and memory for faster access to peripherals. An DVI/TV interface is multiplexed with the AGP bus and can be used to drive DVI compatible flat panel displays, projectors, and digital CRTs and TV monitors.

The Dolby® Digital Interactive Content encoder™ is also integrated that can also process and output a Dolby Digital audio stream directly to a home theater system via a S/P DIF interface.

WinFast K7N415DA/420DA offers innovative design, support for high-volume DDR memory, and configuration options that optimize performance and provide a robust, mainstream platform.

1.1 Package Content

Accessories:

- 6X Sound module (with SPDIF output) x 1
- 14-pin Flat Cable x 1
- Ultra ATA 66/100 IDE cable x 1
- FDD cable x 1
- This user's manual
- USB module and cable (optional)
- TV-out add-on card (optional)

Motherboard & SCSI Software Pack CD:

- Chipset Driver
- 6X Sound audio driver
- IDE driver
- LAN driver
- AWARD flash utility
- User's manual
- Technical support request form

1.2 Specifications

CPU Support

- AMD Athlon/Athlon XP/Duron processors at 2100+ MHz with Socket A support

Chip Set

- nVIDIA nForce420D/nForce415D
  - Built-in IGP-128 GPU
  - 200/266 MHz FSB support
  - Dual channel memory architecture with 128Bit DDR memory controller
  - Built-in GeForce2 MX equivalent GPU (WinFast K7N420DA only)
  - High-speed buses to MCP (800MB/sec maximum)
- nVIDIA MCP-D
  - Two ATA/100 controllers
  - USB OHCI 1.0a support, providing 6 USB ports.
  - Supports 6-channel AC97 Codec

FSB (Front Side Bus)

- 100/133 (200/266) MHz FSB support

Memory

- Supports three 184-pin DDR DIMMs
- Up to 1.5 GB
- Supports 128 bit memories

On Board IDE

- The IDE controller on nVIDIA MCP chipset supports IDE/CD-ROM under Ultra DMA 100
- Twin headers for four IDE devices including IDE HDDs and CD-ROMs

Expansion Slot

- Four 32-bit PCI bus slots supporting 3.3v/5v PCI Bus Master
- One Accelerated Graphics Port (AGP)
  - In compliant with AGP standards
  - AGP 4x support
- One ACR slot

Video

- 256-bit 2D/3D graphics accelerator
- Second generation T&L engine support with nVIDIA shading rasterizer
- TV-out add-on card support (optional)

On Board LAN (Optional)

- 10/100 MB Base-T Ethernet/Fast Ethernet

On Board IO

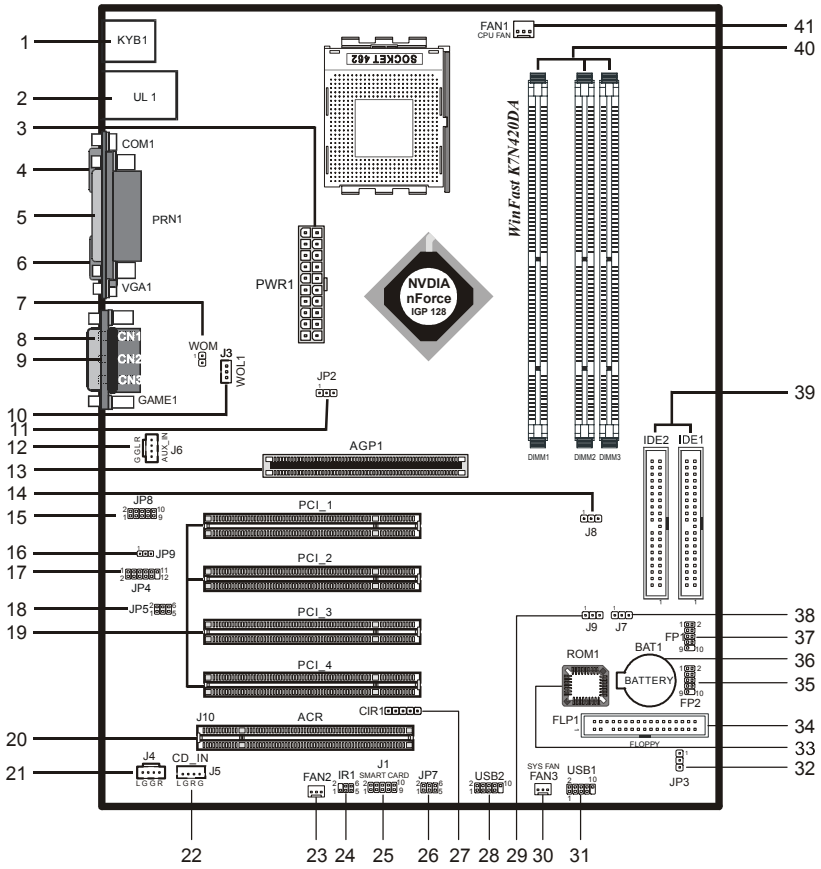
- 1 FDD connector supporting 2 360K/720K/1.2M/1.44M/2.88MB FDDs
- 1 COM/serial port
- 1 parallel port supporting SPP/EPP/ECP modes
- 1 VGA port (WinFast K7N420DA only)
- A second COM port (WinFast K7N415DA only)
- 6 USB ports (2 built-in and 4 with Front Pin Header)
- 1 IrDA connector
- 1 CIR connector
- 1 audio/game port

Board Size

- ATX form Factor/12" x 9.6" (304.8mm x 243.8mm)

2. Quick Setting

2.1 Jumper Position



1. KYB
2. UL1
3. PWR1
4. COM1
5. PRN1
6. COM2 or VGA1
7. J2
8. GAME1
9. CN1-3
10. J3
11. JP2
12. J6
13. AGP1
14. J8
15. JP8
16. JP9
17. JP4
18. JP5
19. PCI1-4
20. J10
21. J4
22. J5
23. FAN2
24. IR1
25. J1
26. JP7
27. CIR1
28. USB2
29. J9
30. FAN3
31. USB1
32. JP3
33. ROM1
34. FLP1
35. FP2
36. BAT1
37. FP1
38. J7
39. IDE1, IDE2
40. DIMM1-3
41. FAN1

2.2 Jumper/Connector Listing

Jumper/Connector	Description
AGP1	AGP slot
BAT1	Battery
CN1, CN2, CN3	Line Out, Line In, Mic In ports
COM1, COM2	COM1, COM2 connectors
DIMM1-3	Memory module connectors
FAN1	CPU fan connector
FAN2	VGA fan connector
FAN3	System fan connector
FLP1	Floppy disk connector
FP1, FP2	Case Signal Connector: PWRBTN, RESET, KEY LOCK, SPEAKER, HDD_LED, POWER_LED, ACPILED
GAME1	Game port
IDE1/IDE2	Hard disk connectors (Primary IDE/Secondary IDE)
IR1, CIR1	IR and CIR connectors
J1	Smart Card connector
J2	Wake on modem
J3	Wake on LAN
J4, J5	CD input connector
J6	AUX input connector
J7	Clear CMOS data
J8	Intruder alert
J9	SPDIF connector
J10	ACR slot
JP2	CPU frequency selection
JP3	Voice alert language selection
JP4	Audio connector
JP5	Center/Bass conversion
JP7	USB module selection
JP8	Audio front panel header
KYB1	PS2 keyboard and mouse ports
PCI1-PCI4	PCI slot
PNR1	Printer port
PWR1	ATX power connector
UL1	USB ports and 10/100 LAN connector
USB1, USB2	USB module connector, providing 4 additional USB ports
VGA1	VGA connector

2.3 Jumper Settings

Clear CMOS Data

Jumper	Setting	
J7	Clear CMOS	
	Normal (Default)	

CPU/FSB Frequency

Jumper	Frequency	Setting
JP2	133 MHz	
	100 MHz (Default)	

Center/Bass Convert

Jumper	Setting	
JP5	Normal (Default)	
	Inverse	

2nd USB of USB2 Pin Header Selection

Jumper	Setting	
JP7	USB2 (Default)	
	ACR Slot	

3. Hardware Setup

⚠ Static Precautions

Static discharge can damage electronic components. To prevent that, it is important to handle it carefully. The following measures will suffice your equipment from static.

- Use a grounded wrist strap designed for static discharge.
- Touch a grounded metal object before you remove the board from the anti-static bag.
- Handle the board by its edges only; do not touch its components, peripheral chips, memory modules, or gold contacts. Do not touch pins on chips or modules.
- Put the system board and peripherals back in anti-static bags when they are not in use.
- For grounding purposes, be sure your computer chassis provides excellent conductivity between its power supply, case, the mounting fasteners, and the system board.

3.1 CPU Installation

Please refer to the instruction manual of the CPU for how to install the CPU.

3.2 Memory Installation

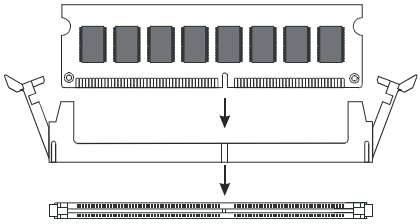
The motherboard provides three 184-pin DIMM (Double In-Line Memory Module) sockets, DIMM1, DIMM2, and DIMM3. You can use DDR RAM from 8MB, 16MB, 32MB, 64MB, 128MB, 256MB to 512MB per DIMM socket.

IF you choose DDR200 in the Memory Frequency option in BIOS, you must use the qualified DDR SDRAM that meets PC2100 specifications.

IF you choose DDR266 in the Memory Frequency option in BIOS, you must use the qualified DDR SDRAM that meets PC2700 specifications.

DIMM Installation Procedures

The DIMM slot has two keys marked "VOLT" and "DRAM", thus making the module only fit in one direction. Note that the module must be a 2.5V unbuffered DIMM.



Step 1: Insert the module vertically into the DIMM socket, and then push it in.

Step 2: The plastic clip at the side of the DIMM socket will automatically close.

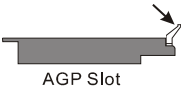
3.3 AGP Display Adapter Installation

The AGP slot on WinFast K7N415DA/420DA supports only 1.5V 4X AGP device. To install an AGP display adapter, follow these steps:

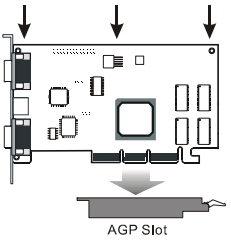
Step 1: Push the clip at the end of AGP slot.

Step 2: Position the AGP card over the AGP slot. Do not tilt the card. Insert the bus connector in the slot and gently press the bus connector down.

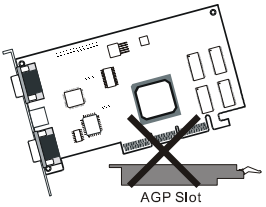
Step 3: Push the clip back to close it.

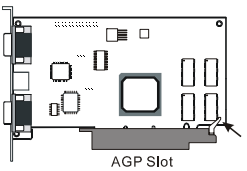


Step 1



Step 2





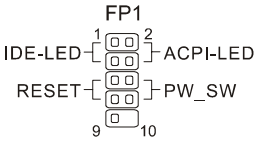
Step 3

3.4 Connecting Instructions

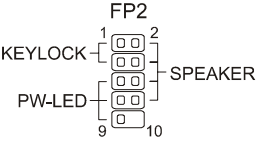
How each connector is connected and what it does is described here in detail. See Chapter 2 to locate connectors.

Case Signal Connectors (FP1 & FP2).

FP1:



- **Pins [1 & 3] IDE-LED:** IDE hard disk LED shows the activity of a hard disk drive.
- **Pins [2 & 4] ACPI-LED:** For ACPI LED connection on the case.
- **Pins [5 & 7] RESET:** Connects to the reset button on the case. The reset button is used to “cold-boot” the system without actually turning off the power, reducing wear and tear on the power supply. Avoid rebooting the system when the HDD LED is blinking.
- **Pins [6 & 8] PW_SW:** Allows connecting to the power button on the case.

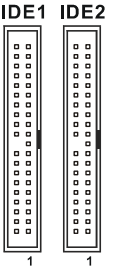


FP2:

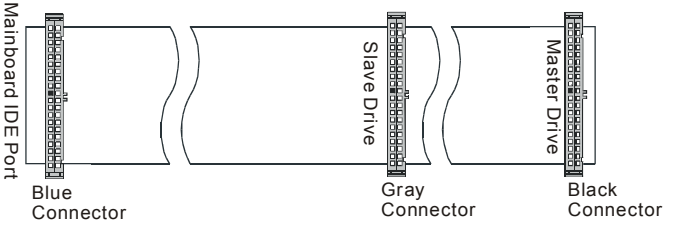
- **Pins [1 & 3] KEYLOCK:** Keyboard lock switch lead. It connects to the case-mounted keylock switch, allowing you to disable the keyboard function for security purpose.
- **Pins [5 & 7 & 9] PW-LED:** Power LED. Always lit when system power is on.
- **Pins [2 & 4 & 6 & 8] SPEAKER:** Connects to the speaker on system’s case.

Hard Disk Connector

The on-board Enhanced IDE controller can support up to 4 IDE hard drives or other ATAPI devices, such as CD-ROMs. This controller, as with all Enhanced IDE controllers, consists of both Primary (IDE 1) and Secondary (IDE 2) ports. Each port has an associated connector and cable, which can support up to 2 ATAPI devices each.



All IDE devices have jumpers, which allow the user to configure the device as either “Master” or “Slave”. A Master device is one that is ALONE on the IDE cable, whereas a Slave device is installed as a SECOND device on the same cable. Keep in mind that the Master device will appear before the Slave device in the CMOS Setup, as well as the Operating System software. *Refer to the device documentation for jumper settings.



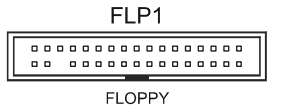
The Secondary IDE port can be used for up to 2 additional ATAPI devices. Normally it’s recommended that you connect your first hard drive to the Primary port, and the first CD-ROM to the Secondary.

Make sure to align the RED stripe on the ribbon cable with Pin-1 on the motherboard IDE connector. On most hard drives and CD-ROMs, the RED stripe should be oriented towards the power connector of the device.

When using Ultra ATA 66/100 IDE cable (as shown above), the black color connector on the cable is for Master drive, gray color is for Slave drive and blue color is for connecting to IDE port onboard.

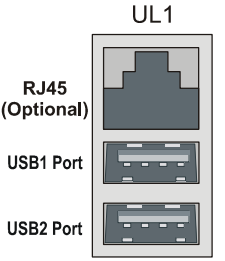
Floppy Disk Connector (FLP1)

The on-board floppy controller supports 2 floppy disk drives. Make sure the RED stripe on the ribbon cable is oriented towards Pin-1. Notice the “twist” between the sets of connectors on the floppy cable. The floppy drive “A” position is at the END of the cable, whereas floppy drive “B” is hooked to one of the connectors on the other side of the twist.

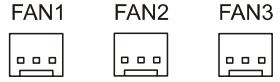


RJ45 Ethernet Connector and USB Connectors (UL1)

RJ45 LAN connector and two USB peripheral devices connectors.



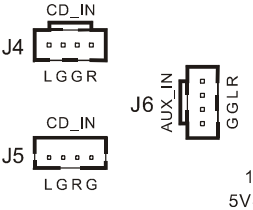
Cooling Fans (FAN1, FAN2, FAN3)



CPU fan (FAN1), AGP fan (FAN2), and system fan (FAN3) are small 3-pin Header Connectors that provide 12-Volt power for CPU fan, power fan, and system fan. Plug in the fan cable to the connector.

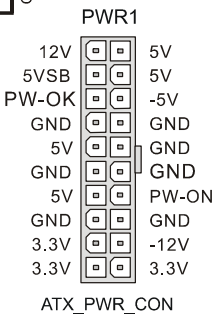
Stereo Audio/Video In Connectors (J4, J5, J6)

J4 and J5 allows you to receive stereo audio input from internal CD ROM drives. J6 is for connecting other auxiliary audio sources.



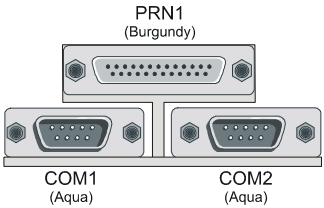
Power Supply Connector (PWR1)

This motherboard features an ATX-style Power Supply Connector. This connector is keyed to prevent connection in the wrong direction. Line up the locking mechanism on the connector from the Power Supply with the tab on the motherboard connector. Press down until the two connectors are locked.

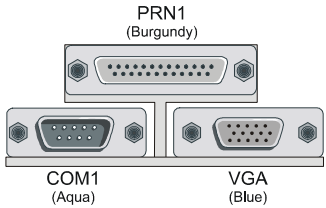


Serial, Parallel and VGA Ports

A 25-pin D-Sub header is provided on the back panel for a multi-mode bi-directional parallel port. For K7N415DA, two 9-pin D-Sub headers are provided on the back panel for serial port COM1 and COM2. For K7N 420DA, there is one 9-pin D-Sub header for serial port COM1, as well as one VGA port for monitor connection.



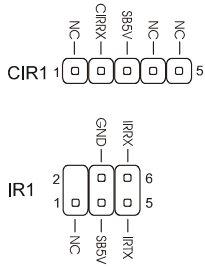
WinFast K7N 415DA



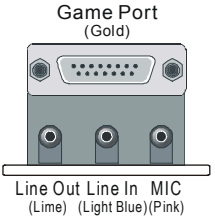
WinFast K7N 420DA

IrDA-Compliant Infrared Module Connector (IR1, CIR1)

The IrDA connector brackets hook directly to these connectors on the motherboard. These connectors provide support for the optional wireless transmitting and receiving infrared module. CIR1 connector is for CIR; IR1 connector is for IR.

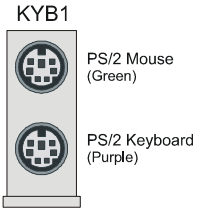


Midi/Joystick, MIC, Line In, Line Out



- ***Midi/Joystick***: Allow you to connect game joystick or game pad for playing games or connect Midi devices for playing or editing audio.
- ***Mic***: Allows microphones to be connected for inputting sound.
- ***Line In***: Allows tape players or other audio sources to be recorded by your computer or played through the Line Out.
- ***Line Out***: Connected to headphones or speakers with amplifier.

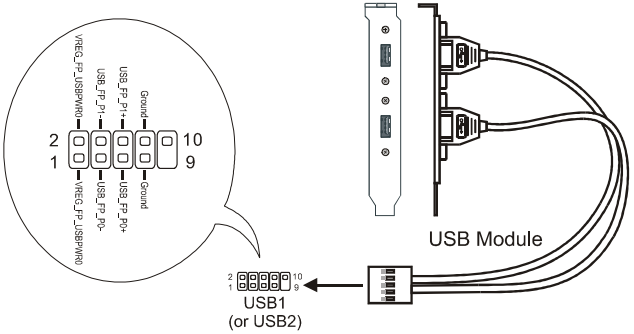
PS/2 Keyboard and Mouse Connector (KYB1)



These two connectors are located on the back panel of the motherboard.

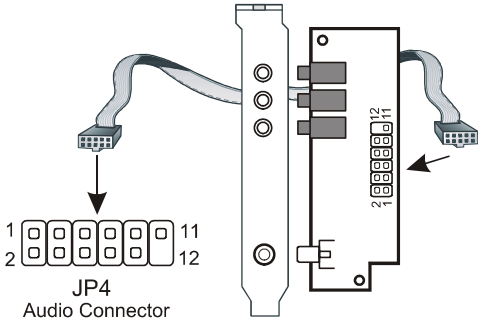
USB Connectors (USB1 & USB2)

Each of these connectors is for connecting an optional USB module to provide two additional USB connectors.



Audio Connector (JP4)

JP4 is for connecting to the sound module that comes with the package. See the following figure for how to connect the sound module.



4. BIOS Setup

The BIOS Setup (also called CMOS Setup) is where many hardware configurations are done and stored. This configuration information will remain in the BIOS until it is changed, or cleared. CMOS refers to the chip in which the BIOS information is stored, even when the power is turned off.

AwardBIOS CMOS setup utility allows you to change hardware settings in the BIOS. This chapter gives a detailed description of each setup item as to what function it controls and how one can modify its setting.

This motherboard also features a *Flash* BIOS. A Flash BIOS can be upgraded by software programs.

The AwardBIOS is activated once you boot the computer. The BIOS reads CMOS for system configuration information, and begins the process of checking out the system and configuring it through the power-on self test (POST).

When three preliminaries are finished, the BIOS seeks an OS on one of the data storage devices (hard drive, floppy disk, etc.) and launch it.

During POST, you can start the Setup program by pressing **Del**.

The AwardBIOS supports an override to CMOS settings, which will reset your system to its default configuration if your computer can no longer boot up after making changes.

We suggest you to only alter settings you have thorough knowledge of. Do not change settings without a good reason.

To enter the Award BIOS program's main menu:

- Turn on or reboot the system.
- After the diagnostic checks, press the [Del] to enter the Award BIOS Setup Utility.

To select items:

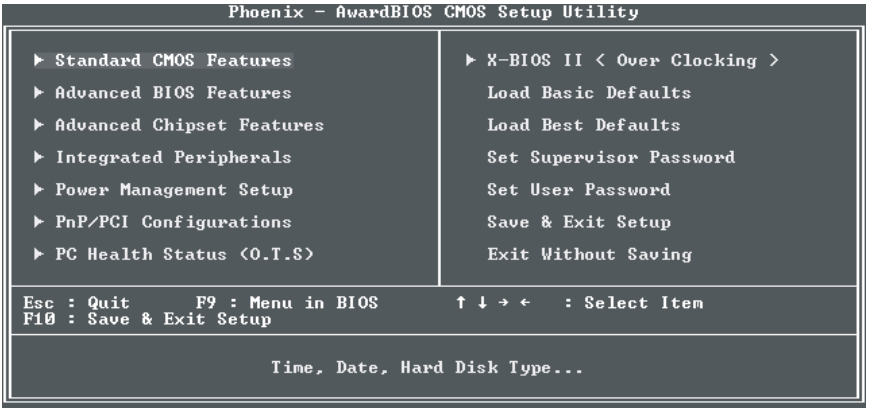
- Use the arrow keys to move between items and select fields.
- From the Main Menu, press arrow keys to enter the selected submenu.

To modify selected items:

- Use the [Up]/[Down] keys to modify values within the selected fields. Some fields let you enter values directly.

4.1 Main Menu

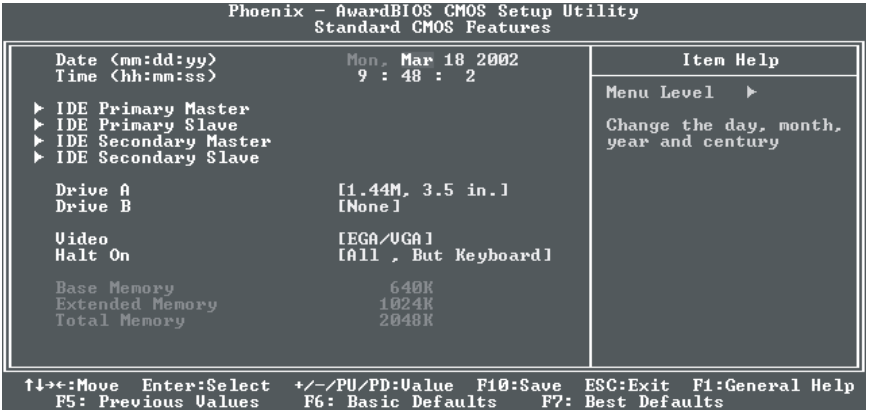
Once you enter the AwardBIOS CMOS Setup Utility, the Main Menu appears on the screen. Main Menu presents you the Setup functions included two exit choices. You could use the arrow keys to select among the items and then press Enter to the submenu.



* Description of selected item is shown in the column on the bottom of the screen.

4.2 Standard CMOS Features

The Standard CMOS Features allows you to choose the options in the setting item for basic system configuration.



* The Item Help column contains the description of selected item.

Date [mm:dd:yy]

The BIOS determines the day of the week from the other date information. It is for information only.

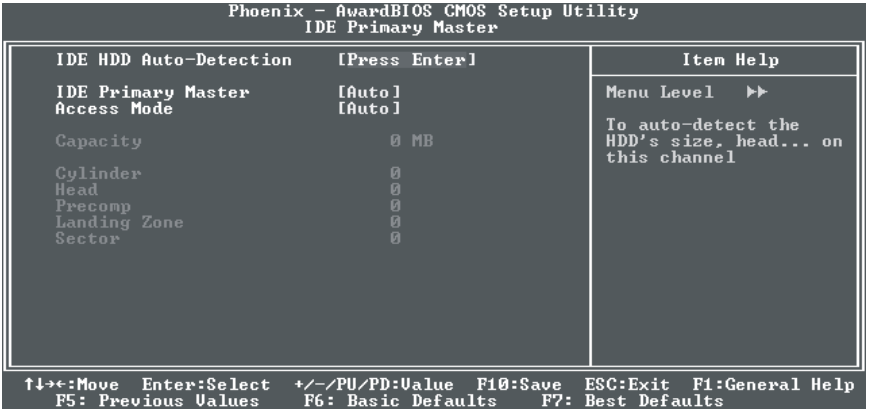
Time [hh:mm:ss]

The time format is <hour> <minute> <second>. The time is calculated based on the 24-hour military-time clock. For example, 1 p.m. is 13:00:00.

IDE Primary Master/ Primary Slave/Secondary Master/Secondary Slave

After pressing [Enter], a menu window appears as shown on below:

The BIOS supports up to four IDE drives. This section does not show information about other IDE devices, such as a CD-ROM and SCSI drives.



* The Item Help column contains the description of selected item.

IDE HDD Auto-Detection

The “IDE HDD Auto-Detection” utility is a very useful tool especially when you do not know the type of hard disk you are using. You can use this utility to detect the correct disk type installed in the system automatically. The BIOS will automatically detect the hard disk size and model during POST.

The AwardBIOS supports 3 HDD modes: NORMAL, LBA and LARGE modes. The Generic access mode, neither BIOS nor IDE controller, will make transformations during accessing.

NOTE: *There must be some software involved to support LBA or LARGE mode of HDDs. All the software needed is located in the Award HDD Service Routine (INT 13h). It may fail to access a HDD with LBA (LARGE) mode selected if you are running under an Operating System, which replaces the whole INT 13h. UNIX operating system do not support either LBA or LARGE, and must utilize the Standard mode. UNIX can support drives larger than 528MB.*

Under the AUTO Mode, the BIOS can automatically detect the specifications and optimal operating mode of almost all IDE drives. When you select type Auto for a hard drive, the BIOS detects its specifications during POST, every time the system boots.

IT IS RECOMMENDED THAT YOU SELECT THE TYPE AUTO FOR ALL DRIVES.

Drive A /Drive B [1.44M, 3.5 in.]

Select the correct specifications for the diskette drive(s) installed on your system.

Video [EGA/VGA]

Select the type of primary video subsystem on your system. The BIOS usually detects the correct video type automatically, and supports a secondary video subsystem that cannot be selected in Setup.

Halt On [All, But Keyboard]

During the power-on self test (POST), the system stops if the BIOS detects a hardware error. You can ask the BIOS to ignore certain errors and continue the process. There are the options:

***All Errors*:** If the BIOS detects any non-fatal error, POST stops and prompts you to take corrective action.

No Errors: POST does not stop for any error.

All, But Keyboard: POST does not stop for keyboard error, but stops for all other errors.

All, But Diskette: POST does not stop for diskette drive errors, but stops for all other errors.

***All, But Disk/Key*:** POST does not stop for a keyboard or disk error, but stops for all other errors.

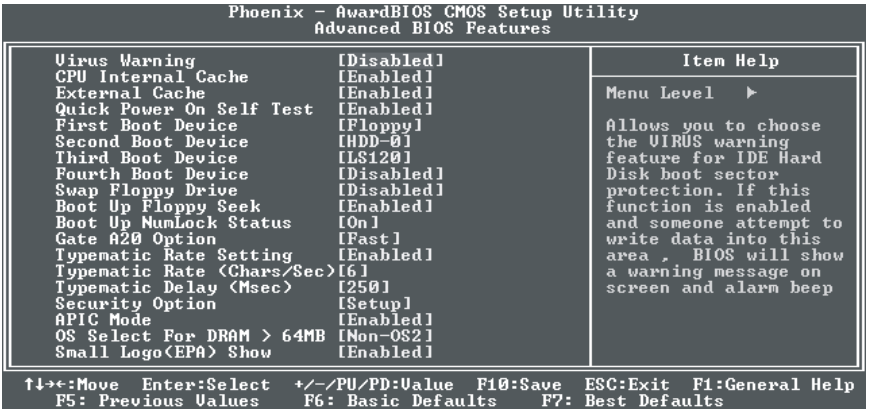
Memory

You can not change the value in the Memory fields which are information only. The setting item shows the total installed random access memory (RAM) and amounts allocated to base memory, extended memory, and other (high) memory.

RAM is the computer's working memory where the computer stores programs and data currently being used, so they are accessible to CPU.

- **Base Memory:** Typically 640 KB is also called conventional memory. The DOS operating system and conventional applications use this area.
- **Extended Memory:** The memory over the 1MB boundary.
- **Total Memory:** Total memory available from the system.

4.3 Advanced BIOS Features



* The Item Help column contains the description of selected item.

Virus Warning [Disabled]

The BIOS will halt on the system. Then the warning message appears as follows if there is virus.

!PBVA WARNING!
Paragon Boot Virus analyzer has
detected virus activity on hard disk
We recommend you to press:
[Enter] Boot from clean disk
[C] Continue Boot

NOTE: *When this item is enabled, the monitoring boot sector virus only happens at the booting period. After you enter the system, this function is disabled automatically. So you can run any kind of program, such as many disk diagnostic programs, which attempt to access boot sectors or the partition table of hard disk drive when it is running.*

CPU Internal/External Cache

Cache memory is additional memory that is much faster than conventional DRAM (system memory). When the CPU requests data, the system transfers the requested data from the main DRAM into cache memory, for even faster access by the CPU. Select *Enabled* to enable cache.

Quick Power On Self Test [Enabled]

Select Enabled to reduce the amount of time required to run the POST. A quick POST skips certain steps. We recommend that you normally disable quick POST. Better to find a problem during POST than lose data during your work.

First, Second, Third, Fourth Boot Device [HDD-0, Floppy, SCSI, Disabled]
Thiese setup fields determine which drive to be searched first, second or third for the disk operating system (i.e. DOS). You can select your priority bootup drives as Floppy drive A, IDE Hard Disk Drive C, D, E, F, or SCSI.

Swap Floppy Drive [Disabled]
This field is effective only in system with two floppy drives. This item allows you to determine whether to enable the swap floppy drive or not (i.e. physical floppy disk A assigned to logical drive B or physical drive B to logical drive A).

Boot Up Floppy Seek [Enabled]
During the "POST" process, BIOS will determine if the floppy disk drive installed is 40 or 80 tracks. 360K-type is 40 tracks while 760K, 1.2M and 1.44M are all 80 tracks. Because few modern PCs have 40-track floppy drives, we recommend that you set this field to *Disabled* to save time.

Boot Up NumLock Status [On]
This field allows you to determine the default state of the numeric keypad. "On": keypad is number keys after boot up. "Off": keypad is arrow keys after boot up.

Gate A20 Option [Fast]
Gate A20 refers to the way the system addresses memory above 1MB (extended memory). When set to *Fast*, the system chipset controls Gate A20. When set to *Normal*, a pin in the keyboard controller controls Gate A20. Setting to *Fast* improves system speed, particularly with OS/2 and Windows.

Typematic Rate Setting [Enabled]
Setting Enabled allows you to adjust both settings. You can use this feature to accelerate cursor movement with the arrow keys. When this item is set Disabled, keep holding down a key will let the system to use the default typematic rate delay of 250 msec, and typematic rate of 6 chars/sec to input repeatedly.

Typematic Rate (Chars/Sec) [6]
When "Typematic Rate Setting" is Enabled, its selections allow you to select the rate at which character repeats when you hold down a key.

Typematic Delay (Msec) [250]
When "Typematic Rate Setting" is Enabled, its selections allow you to select the delay before key strokes begin to repeat.

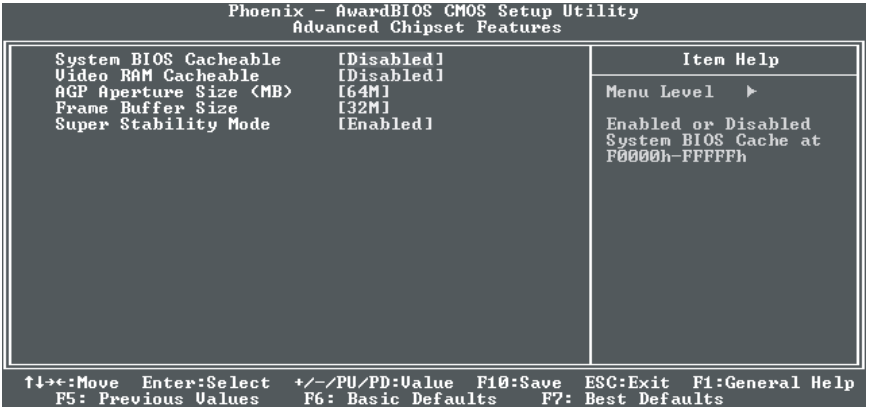
Security Option [Setup]
If you have set a password at USER PASSWORD option in main menu, select whether the password is required every time the System boots, or only when you enter Setup. The options include: *System* and *Setup*.

APIC Mode [Enabled]
The options are: *Enabled* and *Disabled.*

OS Select For DRAM > 64MB [Non-OS2]
Allow you to access memory that is over 64MB in OS/2. Choose OS2 when you are using OS2 and SDRAM size greater than 64 MB. Choose Non-OS2 for other operating systems. The options are: *Non-OS2*, *OS2*.

Small Logo (EPA) Show [Enabled]
The options are: *Enabled* and *Disabled.*

4.4 Advanced Chipset Features



* The Item Help column contains the description of selected item.

This section allows you to configure the system based on the specific features of the installed chipset. This chipset manages bus speeds and access to system memory resources, such as DRAM and the external cache. It also coordinates communications between the conventional ISA bus and the PCI bus. It must be stated that these items should never need to be altered.

The default settings have been chosen because they provide the best operating conditions for your system. The only time you might consider making any changes would be if you discovered that data was being lost while using your system.

System BIOS Cacheable [Enabled]
Selecting *Enabled* allows caching of the system BIOS ROM at F0000h-FFFFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may result.

Video RAM Cacheable [Disabled]
The options are: *Disabled* and *Enabled*.

AGP Aperture Size [64]
This setting item allows you to select the size of the Accelerated Graphics Port (AGP) aperture. The aperture is a portion of the PCI memory address range dedicated for graphics memory address space.

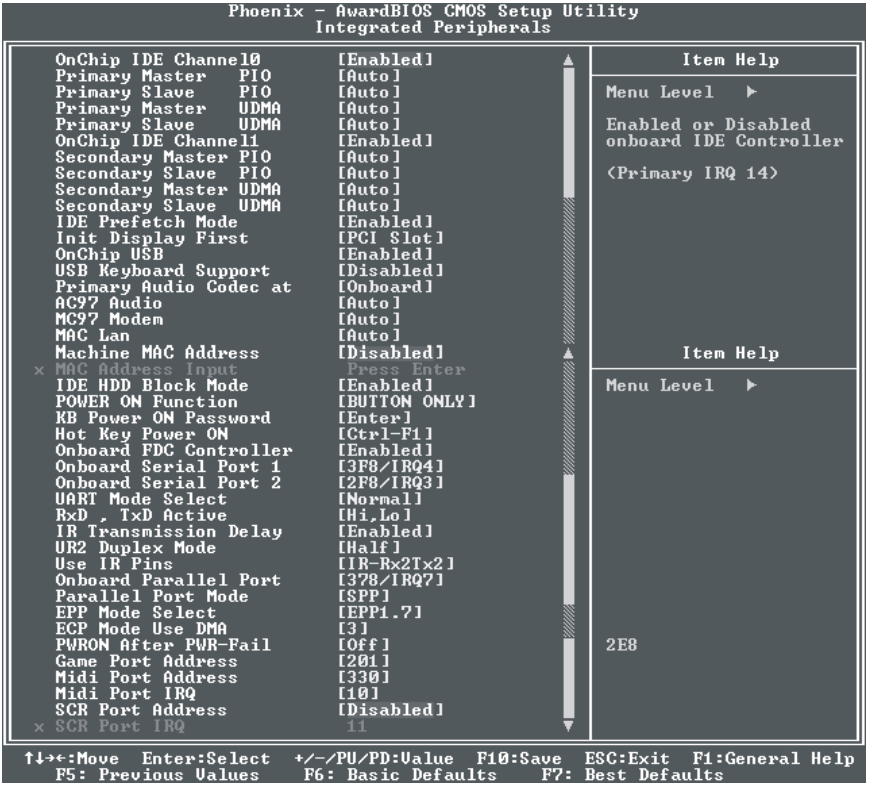
The options are: *4, 8, 16, 32, 64, 128*, and *256*.

Frame Buffer Size [32M]
The options are: *8M*, *16M*, *32M*, and *Disabled*.

Super Stability Mode [Enabled]
The options are: *Enabled* and *Disabled*.

4.5 Integrated Peripherals

This Menu Setup allows you to configure your IDE, USB keyboard, Floppy Drive, Parallel Port, Serial Port, and IR function.



* The Item Help column contains the description of selected item.

On-Chip IDE Channel0 [Enabled]
Selecting *Enabled* allows you to adjust the functions of Primary PIO and UDMA.

On-Chip IDE Channel1 [Enabled]
Selecting *Enabled* allows you to adjust the functions of Secondary PIO and UDMA.

Primary Master/Slave PIO, Secondary Master/Slave PIO [Auto]
The four IDE PIO (Programmed Input/Output) fields let you set a PIO mode (0-4) for each of the four IDE devices that the onboard IDE interface supports. Modes 0 through 4 provide successively increased performance. In *Auto* mode, the system automatically determines the best mode for each device.

The options are: Auto, Mode 0, Mode 1, Mode 2, Mode 3, and Mode 4.

Primary Master/Slave UDMA, Secondary Master/Slave UDMA [Auto]
Ultra ATA 66/100 implementation is possible only if your IDE hard drive supports it and the operating environment includes a DMA driver (Windows 95 OSR2 or a third-party IDE bus master driver). If your hard drive and your system software both support Ultra ATA 66/100, select Auto to enable BIOS support.

The options are: *Auto* and *Disabled*.

IDE Refetch Mode [Enabled]
The options are: *Enabled* and *Disabled*.

Init Display First [PCI Slot]
If you install an additional PCI display cards, you can select either a PCI display card or the onboard/AGP display to activate the display boot-up screen.

OnChip USB [Enabled]
Selecting *Enabled* allows the system Universal Serial Bus (USB) controller when you have USB peripherals. The options are *Enabled* and *Disabled*.

USB Keyboard Support [Disabled]
If you use a USB keyboard, please choose *USB A* or *USB B*.

Primary AudioCodec at [Onboard]
The options are: *Onboard*, and *AMR/CNR*.

AC97 Audio [Auto]
Selecting *Auto* allows the BIOS to detect the audio device you use.

MC97 Modem [Auto]
The options are: *Auto* and *Disabled*.

MAC Lan [Auto]
The options are: *Auto* and *Disabled*.

Machine MAC Address [Disabled]
The options are: *Enabled* and *Disabled*.

MAC Address Input
For inputting the MAC address. Your MAC address is printed on the sticker label on the motherboard.

IDE HDD Block Mode [Enabled]
Selecting *Enabled* allows automatic detection of the optimal number of block read/writes per sector the drive can support.

Power ON Function [BUTTON ONLY]
Allows you to choose a way to power on. The options include *Password*, *Hot KEY*, *Mouse Left*, *Mouse right*, *Any KEY*, *BUTTON-ONLY*, and *Keyboard 98*.

KB Power ON Password [Enter]
This setting item allows you to set a password for keyboard powering on.

Hot Key Power ON [Ctrl-F1]
Allows you to choose one of the hot keys to power on from F1 to F12.

Onboard FDC Controller [Enabled]
This setting item allows you to enable or disable the onboard FDC controller.

Onboard Serial Port 1/Port 2
Select an address and corresponding interrupt for the 1st and 2nd serial ports.

The choices: *3F8/IRQ4*, *2F8/IRQ3*, *3E8/IRQ4*, *2E8/IRQ3*, *Disabled*, and *Auto*.

UART Mode Select
Select an infrared port mode. The options are: *Normal*, *IrDA*, *ASKIR*, and *SCR*.

RxD, TxD Active
The options are: *Hi,Hi*, *Hi,Lo*, *Lo,Hi*, and *Lo,Lo.*

IR Transmission Delay
The options are: *Enabled* and *Disabled*.

UR2 Duplex Mode
This item selects the IR function when the choice of the UART mode is ASKIR.

The options are: *Full* and *Half*.

Use IR Pins
The options are: *RxD2,TxD2* and *IR-Rx2Tx2*

Onboard Parallel Port
This item allows you to determine access onboard parallel port controller with which I/O address.

The options are: *378/IRQ7*, *278/IRQ5*, *3BC/IRQ7*, and *Disabled*.

Parallel Port Mode
Select an operating mode for the onboard parallel port. Normal EPP (Extended Parallel Port) ECP (Extended Capabilities Port) ECP+EPP PC AT parallel port Bi-directional port Fast, buffered port Fast, buffered, bi-directional port.

Set to *Normal* unless you are certain your hardware and software both support EPP or ECP mode.

The options are: *SPP*, *EPP*, *ECP*, and *ECP+EPP*.

EPP Mode Select
The options are: *EPP 1.7* and *EPP 1.9*

ECP Mode Use DMA
This field allows you to select a DMA channel for the port.

The options are: *1* and *3*.

PWRON After PWR-Fail
The options are: *Off*, *On*, and *Former-Sts*

Game Port Address [201]
Select an address for the game port. The options are: *Disabled*, *201*, and *209*.

Midi Port Address [330]
Set the Midi port address. The options are: *Disabled*, *330*, *300*, and *290*.

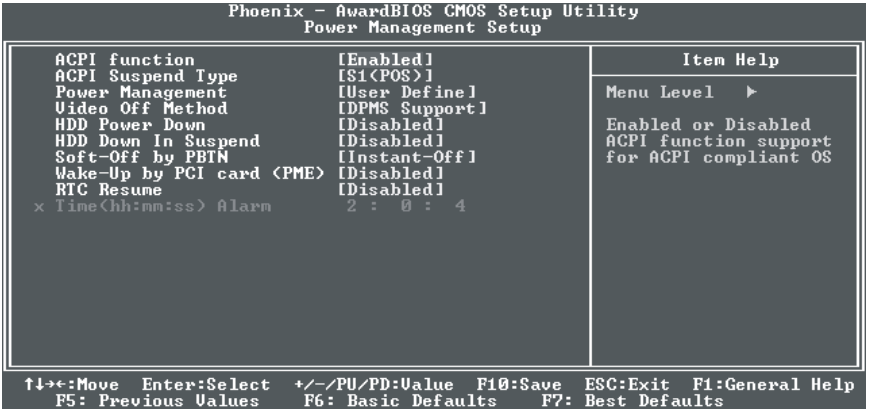
Midi Port IRQ [10]
Select an IRQ to be used by Midi port. The options are: *5* and *10*.

SCR Port Address [Disabled]
Set the SCR port address. The options are: *Disabled*, *3F8*, *2F8*, *3E8* and *2E8*.

SCR Port IRQ [11]
Select an IRQ to be used by the SCR port.

The options are: *11* and *5*.

4.6 Power Management Setup



* The Item Help column contains the description of selected item.

ACPI Function [Enabled]

Selecting Enabled allows this function if you use ACPI compliant OS, such as Windows 98 or Windows 2000.

ACPI Suspend Type [S1(POS)]

Two options are available: S1 (POS) and S3 (STR). POS stands for Power On Suspend. STR stands for Suspend To RAM.

Power Management [User Define]

This category allows you to select the type (or degree) of power saving and is directly related to the following modes:

There are 4 selections for Power Management, three of which have fixed mode settings.

Disable (default)	No power management. Disables all four modes
User Defined	Allows you to set each mode individually. When not disabled, each of the ranges are from 1 min. to 1 hr. except for HDD Power Down which ranges from 1 min. to 15 min. and disable.
Min. Power Saving	Minimum power management. Doze Mode = 1 hr. Standby Mode = 1 hr., Suspend Mode = 1 hr., and HDD Power Down = 15 min.
Max. Power Saving	Maximum power management -- **ONLY AVAILABLE FOR SL CPU'S**. Doze Mode = 1 min., Standby Mode = 1 min., Suspend Mode = 1 min., and HDD Power Down = 1 min.

Only Power Management field on the Power Management Setup menu is set to User Defined will the following fields be user configurable.

Video Off Method [DPMS Support]

This determines the manner in which the monitor is blanked:

Blank Screen: This option only writes blanks to the video buffer.

V/H SYNC+Blank: This selection will cause the system to turn off the vertical and horizontal synchronization ports and write blanks to the video buffer.

DPMS Supported: Select this option if your monitor supports the Display Power Management Signaling (DPMS) standard of the Video Electronics Standards.

Video Off In Suspend [Yes]

This setting item determines the manner in which the monitor is blacked.

HDD Power Down [Disabled]

This setting item will be able to change when Power Management is set to User Define.

The options are: *Enabled* and *disabled*.

HDD Down In Suspend [Disabled]

The options are: *Enabled* and *disabled*.

Soft-Off by PBTN [Instant-Off]

This item allows you to set the off function of power button by software control.

The options are: *Instant-off* and *Delay 4 sec*.

Wake-Up by PCI card [Disabled]

This setting item allows you to wake-up your system by PCI devices.

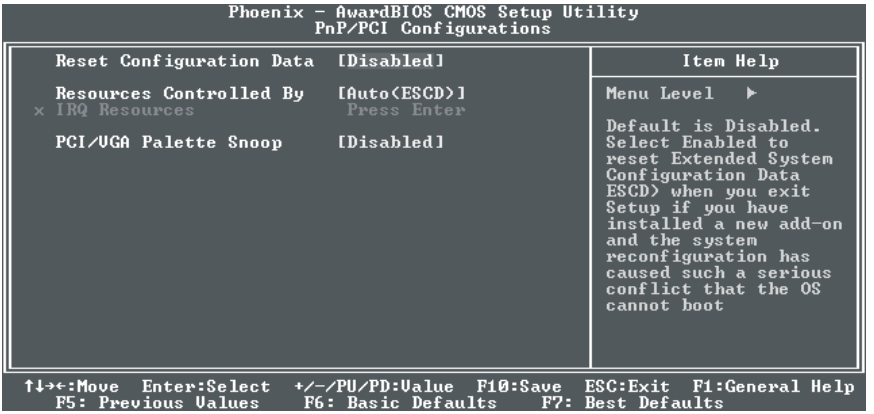
RTC Resume [Disabled]

The options are: *Enabled* and *disabled*.

Time (hh:mm:ss) Alarm [0 0 0]

Set a time for the alarm in hours, minutes, and seconds.

4.7 PnP/PCI Configurations



* The Item Help column contains the description of selected item.

The PCI Personal Component Interconnect Bus was developed primarily to address two important issues: (a) How to allow peripheral devices to take the fullest advantage of the power of CPU technology, and (b) Provide a simpler installation process for peripheral devices, such as Network cards, EIDE or SCSI controllers.

PCI accomplishes these goals with its 32-bit Data path Local Bus design, and support for Plug & Play. Unlike older expansion bus architectures, PCI provides peripherals with a direct connection to the CPU and memory. The PCI bus runs at 33Mhz and has a maximum transfer capability of 132MBps. With Plug & Play, the system BIOS automatically determines hardware resources for new peripherals, simplifying installation of multiple interface cards.

This Setup Menu provides configuration options for the PCI Bus and its assigned resources.

Reset Configuration Data [Disabled]

- ***Disabled:*** Normal Setting
- ***Enabled:*** Select Enabled to reset Extended System Configuration Data (ESCD) when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the operating system cannot boot.

Resource Controlled By [Auto (ESCD)]

- ***Manual:*** The field defines that the PNP Card's resource is controlled by manual. You can setup whether IRQ-X or DMA-X is assigned to PCI/ISA PnP or Legacy ISA Cards.

- ***Auto:*** If your ISA card and PCI card are all PNP cards. Set this field to "Auto". The BIOS will assign the interrupt resource automatically.

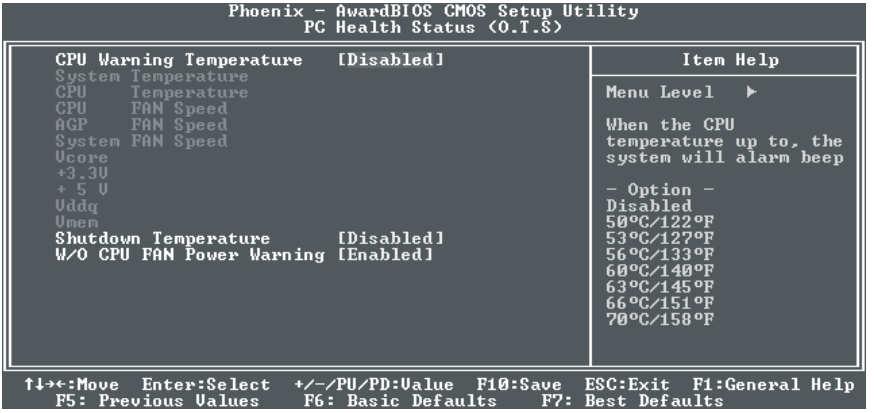
IRQ Resources [Press Enter]

Pressing *Enter* will take you to the IRQ Resources setup screen that allows you to assign each IRQ to a device. When the resources are controlled manually, pressing *Enter* will take you to the IRQ Resources setup screen that allows you to assign each system interrupt as a PCI device or reserve the IRQ, depending on the type of device using the interrupt:

PCI/VGA Palette Snoop [Disabled]

Selecting Enabled allows the BIOS to preview VGA Status, and to modify the information delivered from the feature connector of the VGA card to the MPEG card.

4.8 PC Health Status

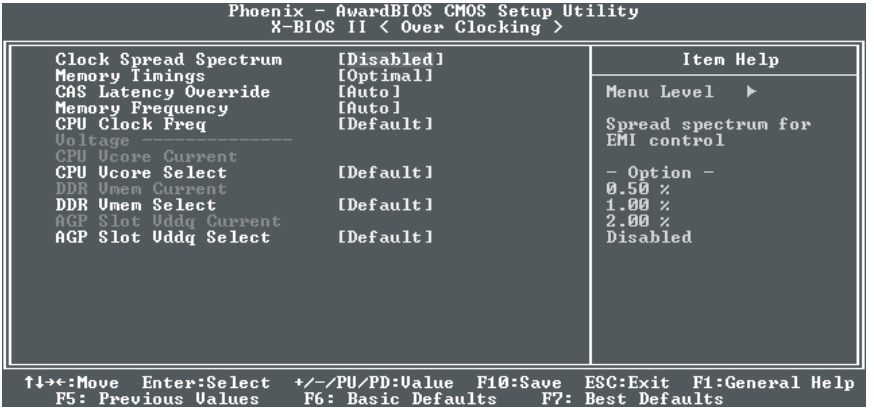


* The Item Help column contains the description of selected item.

This section helps you to get more information about your system including CPU temperature, FAN speed and voltages. It is recommended that you contact with your motherboard supplier to get proper value about your setting of the CPU temperature.

NOTE: *When a Cyrix CPU is installed, the CPU Temperature and the System Temperature will not be displayed.*

4.9 X-BIOS



* The Item Help column contains the description of selected item.

Clock Spread Spectrum [Disabled]
When the system clock generator pulses, the extreme values of the pulse generate excess EMI. Enabling pulse spectrum spread modulation changes the extreme values from spikes to flat curves, thus reducing EMI. This benefit may in some cases be outweighed by problems with timing-critical devices, such as a clock-sensitive SCSI device. You can reduce EMI by setting this item to turn on the clock signal with spread spectrum support.

The options include: *0.5%*, *1%*, *2%*, and *Disabled*.

Memory Timings
The options are: *Aggressive* and *Optimal*.

CAS Latency Override
The options are: *2 Clocks*, *2.5 Clocks*, and *Auto*.

Memory Frequency
For setting the memory frequency.

The options are: *133 MHz*, *100 MHz*, and *Auto*.

CPU Clock Frequency [Default]
For setting the CPU clock frequency. The options range from 100 MHz (default) to 157 MHz.

CPU Vcore Select [Default]
For setting the Vcore voltage. The options include: *-0.05 V*, *-0.025 V*, *Default* (0), *+0.025 V*, *+0,05 V*, *+0.075 V*, *+0.1 V*, and *+0.125 V*.

DDR Vmem select [Default]
The options are: *+0.2 V*, *+0. 1 V*, and *Default*.

AGP Slot Vddq Select [Default]
The options are: *+0.2 V*, *+0.1 V*, and *Default*.

4.10 Load Basic Defaults

The BASIC Defaults have been set to provide the minimum requirements for your system to operate. Its performance is lower than the “Load Best Defaults”. We suggest you use “Load Best Default”. If your system card has compatibility issues, use the “Load Basic Defaults”.

4.11 Load Best Defaults

The “Load Best Defaults” function loads the system manufacture default data. This is the default setting from Leadtek. This function will be necessary when the system CMOS data is corrupted or you forget your settings.

4.12 Set Supervisor/User Password

Passwords can be set to provide protection for the BIOS configuration options, or to restrict access to the computer itself.

When enabled, User Password will require all users to enter a password in order to use the system, and/or enter the BIOS setup (but can’t change its contents). A Supervisor Password is used to protect the stored CMOS options from being changed by unauthorized users.

Keep in mind that when set, a password is required only when booting the system. It will not provide protection to a system that is already booted.

The password check option is set in BIOS FEATURES SETUP by choosing either System (the password prompt appears every time the system is powered on) or Setup (the password prompt appears only when the user enters the BIOS Setup). The password is stored in CMOS RAM, and can be cleared by removing the battery for a while and then re-installing it back.

To set a password:

- You must first set the Supervisor password by choosing Supervisor Password and pressing [ENTER]. Setup prompts for a password.
- Enter a 1~8 character password using letters, numbers, or a combination of both. The specific characters are not shown as you enter them. Press [ENTER].
- A confirmation box appears asking you to re-enter the password. Enter the password again. Press [ENTER]. Follow the same procedure to set the User Password.

To change a password:

Select the appropriate password option (Supervisor or User) from the main menu

and press [ENTER]. Enter the current password and press [Enter]. The screen does not display the characters entered. Enter in the new password, then the confirmation. You cannot change the current password unless you know it.

To erase a password:

- If you know the current password, but want to disable password checking, follow the procedure for changing the password. When the Setup prompts for the new password, simply press [ENTER]. You will see a message indicating that the password is disabled.

- If you do not know the current password, you can clear the CMOS data by removing the battery for a while and then re-installing it back (this will clear all the user-defined BIOS).

4.13 Save & Exit Setup

The “SAVE & EXIT SETUP” option will bring you back to boot up procedure with all the changes you just recorded in the CMOS RAM.

4.14 Exit Without Saving

The “EXIT WITHOUT SAVING” option will bring you back to normal boot up procedure without saving any data into CMOS RAM, and will not destroy all the old data in CMOS.

5. Driver Installation

5.1 Under Windows ME/2000/XP

The installations of the chipset driver, audio driver, VGA driver and LAN driver under Windows ME/XP/2000 all together take just one click. Follow the steps given below to install all those drivers at once.

Step 1: Insert the “WinFast Motherboard & SCSI Software Pack CD” into the CD-ROM drive.

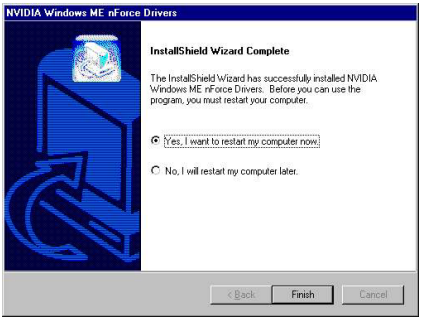
Step 2: The Autorun program will be automatically executed and the WinFast K7N415DA/420DA Setup screen (see the first figure to the right) will appear with a selectable menu. Click on “Chipset Driver Setup”.



Step 3: The InstallShield Wizard dialog box appears (see the figure to the right). It will guide you through the installation process.



Step 4: Once the installation is complete, you will be asked if you want to restart your computer. Check “Yes, I want to restart my computer now” and click “Finish”.



5.2 Under Windows 98

5.2.1 Installing Chipset Driver

Step 5:
Insert the “WinFast Motherboard & SCSI Software Pack CD” into the CD-ROM drive.



Step 6:
Your computer will run the Autorun program automatically and the WinFast K7N415DA/420DA setup screen will appear as shown in the figure to the right. Click “Exit”.

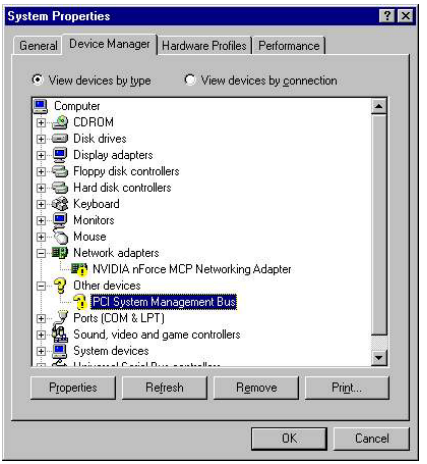
Step 7:
Open the “Control Panel” window by selecting “Setup” from the “Start” menu. Double click on ‘System’



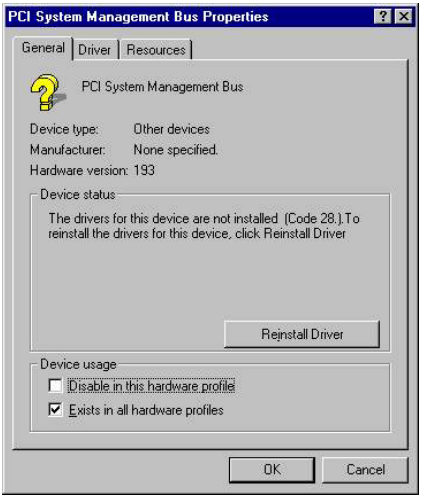
Step 8:
The “System Properties” dialog box appears as shown in the figure. Click on the ‘Device Manager’ tab.



Step 9:
Another dialog box appears with a list of devices as the figure to the right. Double click on “Other devices”. Then you will see a list of unknown devices. Select “PCI system Management Bus” and then click the “Properties” button.



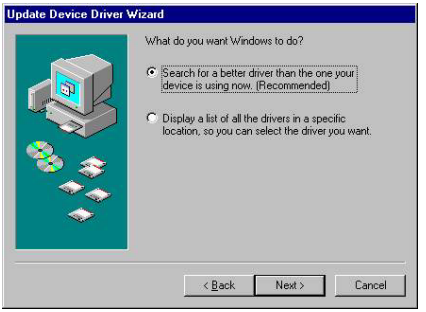
Step 10:
Another dialog box appears as shown in the figure to the right. Click on the “Reinstall Driver” button.



Step 11:
The ‘Update Device Driver Wizard’ dialog box pops up, that says “This wizard searches for updated driver for: PCI System Management Bus.’ Click ‘Next’.



Step 12:
Another dialog box appears with 2 options as shown in figure to the right. Select “Search for a better driver than the one your device is using now…” Then click ‘Next’.



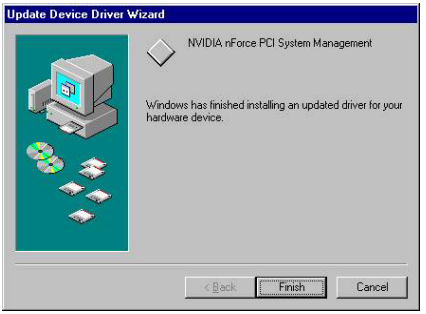
Step 13:
The dialog box will ask you to help search for the driver. Tick ‘Specify a location’ and type in the field ‘E:\Driver\Chipset\Nvidia\Win98ME’, or browse for it (assuming E driver is your CD-ROM drive). Then click ‘Next’.



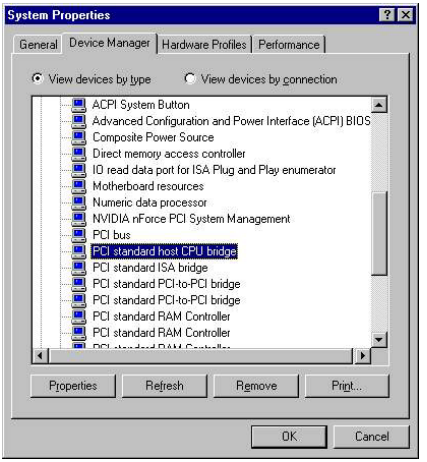
Step 14:
The system will then search for the device the driver is for. The wizard will let you know when the device is found. Click ‘Next’ when you see the dialog box as shown in the figure to the right.



Step 15:
The system is now updating your driver. When the updated driver is installed successfully, dialog box will tell you so as shown in the figure to the right. Click ‘Finish’.



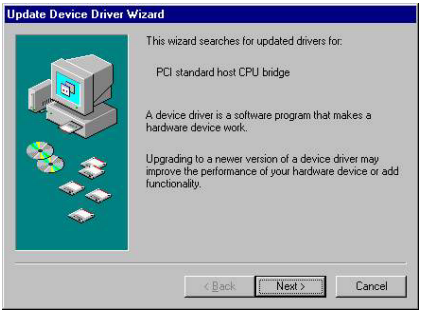
Step 16:
Repeat Step 3 and Step 4 to open the 'Device Manager' dialog box. Double click on "System devices". Then you will see a list of system devices. Select "PCI Standard host CPU bridge" and then click the "Properties" button.



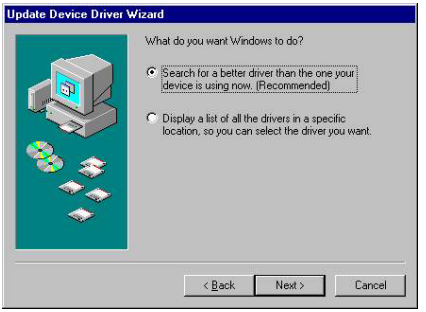
Step 17:
Another dialog box appears as shown in the figure to the right. Click on the "Reinstall Driver" button.



Step 18:
The 'Update Device Driver Wizard' dialog box pops up, that says "This wizard searches for updated driver for: PCI standard host CPU bridge'. Click 'Next'.



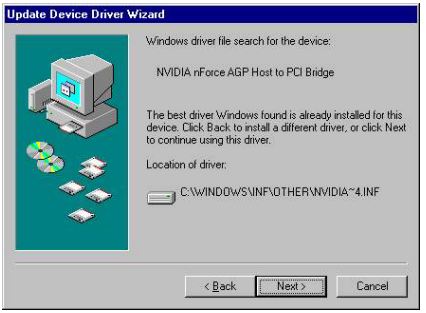
Step 19:
Another dialog box appears with 2 options as shown in figure to the right. Select “Search for a better driver than the one your device is using now…” Then click ‘Next’.



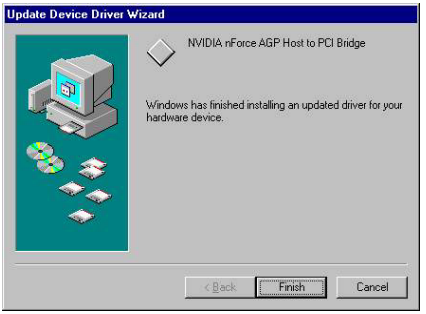
Step 20:
The dialog box will ask you to help search for the driver. Tick ‘Specify a location’ and type in the field ‘E:\Driver\Chipset\Nvidia\Win98ME’, or browse for it (assuming E driver is your CD-ROM drive). Then click ‘Next’.



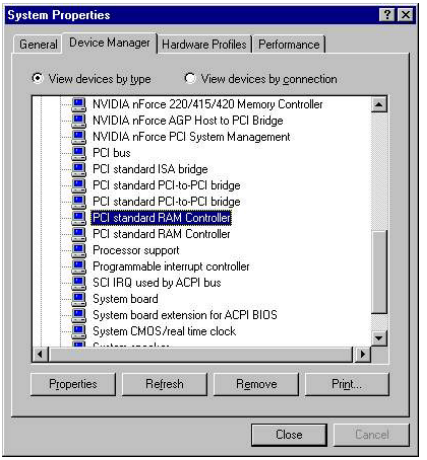
Step 21:
The system will then search for the device the driver is for. The wizard will let you know when the device is found. Click ‘Next’ when you see the dialog box as shown in the figure to the right.



Step 22:
The system is now updating your driver. When the updated driver is installed successfully, dialog box will tell you so as shown in the figure to the right. Click ‘Finish’.



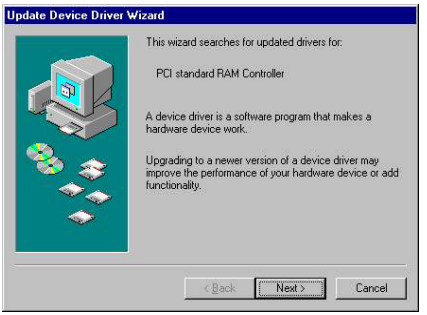
Step 23:
Repeat Step 3 and Step 4 to open the 'Device Manager' dialog box. Double click on "System devices". Then you will see a list of system devices. Select "PCI Standard RAM Controller" and then click the "Properties" button.



Step 24:
Another dialog box appears, click the 'Driver' tab and go to the dialog box as shown in the figure to the right. Click on the "Update Driver" button.



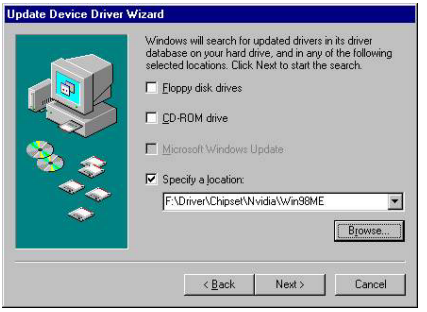
Step 25:
The 'Update Device Driver Wizard' dialog box pops up, that says "This wizard searches for updated driver for: PCI standard RAM Controller'. Click 'Next'.



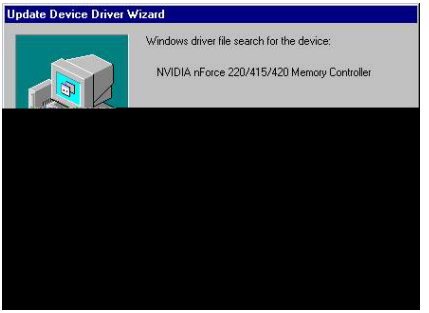
Step 26:
Another dialog box appears with 2 options as shown in figure to the right. Select “Search for a better driver than the one your device is using now…” Then click ‘Next’.



Step 27:
The dialog box will ask you to help search for the driver. Tick ‘Specify a location’ and type in the field ‘E:\Driver\Chipset\Nvidia\Win98ME’, or browse for it (assuming E driver is your CD-ROM drive). Then click ‘Next’.



Step 28:
The system will then search for the device the driver is for. The wizard will let you know when the device is found. Click ‘Next’ when you see the dialog box as shown in the figure to the right.



Step 29:
The system is now updating your driver. When the updated driver is installed successfully, dialog box will tell you so as shown in the figure to the right. Click ‘Finish’.

Step 30:
Repeat Step 19-25 two times to install the drivers for another two PCI Standard RAM Controllers.

7. Appendix

7.1 BIOS Flash Utility

If you get a new floppy disk or CD_ROM from your local dealer which contains a new version of the BIOS binary file, or you obtain the new BIOS binary file directly from our Web Site (www.leadtek.com.tw), please follow the steps below to update the BIOS.

NOTE: *Please contact your dealer first to see if you need to update your BIOS. If you update BIOS without contacting your dealer, you might encounter problems and are unable to start the computer.*

Step 1: Reboot into DOS or "Command Prompt Only" of Windows95/98

Step 2: Insert the accompany CD into CD-ROM (or floppy disk to Drive A)

Step 3: Copy "AWDFLASH.EXE" to a new directory from X:\FLASH sub-directory (X: being your CD-ROM drive).

Step 4: Copy the new BIOS binary file to the above said new directory.

Step 5: Change to the new directory and type the following command: AWDFLASH [Filename] ([Filename] means the file name of BIOS binary file)

Step 6: A message will display on your screen. Follow the instruction to update BIOS.

NOTE: *Do not take any action before finishing the updating, otherwise you may encounter severe problems and need to have it sent for repair.*

Step 7: You can also use "AWDFLASH /?" command for help messages.

NOTE: *1. It is recommended that the application is run under DOS prompt. Please do the following to go to DOS prompt. Start your system. Press and hold* ***Ctrl*** *key before Windows starts, and the Startup Menu will appear. Select the "Safe Mode Command Prompt Only" option.*

2. Windows users can update your BIOS in Windows by running the program, winflash.exe, at X:\Flash (X:\ being your CD-ROM drive).

7.2 Troubleshooting Procedures

Use the following procedures for troubleshooting. If you have followed all of the procedures below and still need assistance, contact your vendor or our Technical Support staff.

Before Power On

Step 1: Make sure there is no short circuit between the motherboard and case.
Step 2: Disconnect all the ribbon/wire cables from the motherboard.
Step 3: Remove all the add-on cards except the video graphics card (Make sure the video/graphics card is inserted properly).
Step 4: Install a CPU, the chassis speaker and the power LED to the motherboard (Check all the jumper settings as well).
Step 5: Install a memory module into one bank.
Step 6: Check the power supply voltage monitor 115V/230V switch.

No Power

Step 1: Make sure the default jumper is on and the CPU is correctly set up.
Step 2: Turn the power switch on and off to test system.
Step 3: If there's still no power, turn it off and check change the jumper setting again.
Step 4: If it does not help by changing the jumper setting, clear the CMOS data.
Step 5: Check the power supply voltage monitor, especifically the power supply 115V/230V switch.

No Video

Use the following steps for troubleshooting your system configuration.

Step 1: If you have no video, remove all the add-on cards and cables.
Step 2: Check for shorted connections, especially under the motherboard.
Step 3: Check the jumpers' settings, clock speed, and voltage settings.
Step 4: Use the speaker to determine if any beep codes exist.
Step 5: If you are a system integrator, VAR or OEM, a POST diagnostics card is recommended. For port 80h codes.

Memory Errors

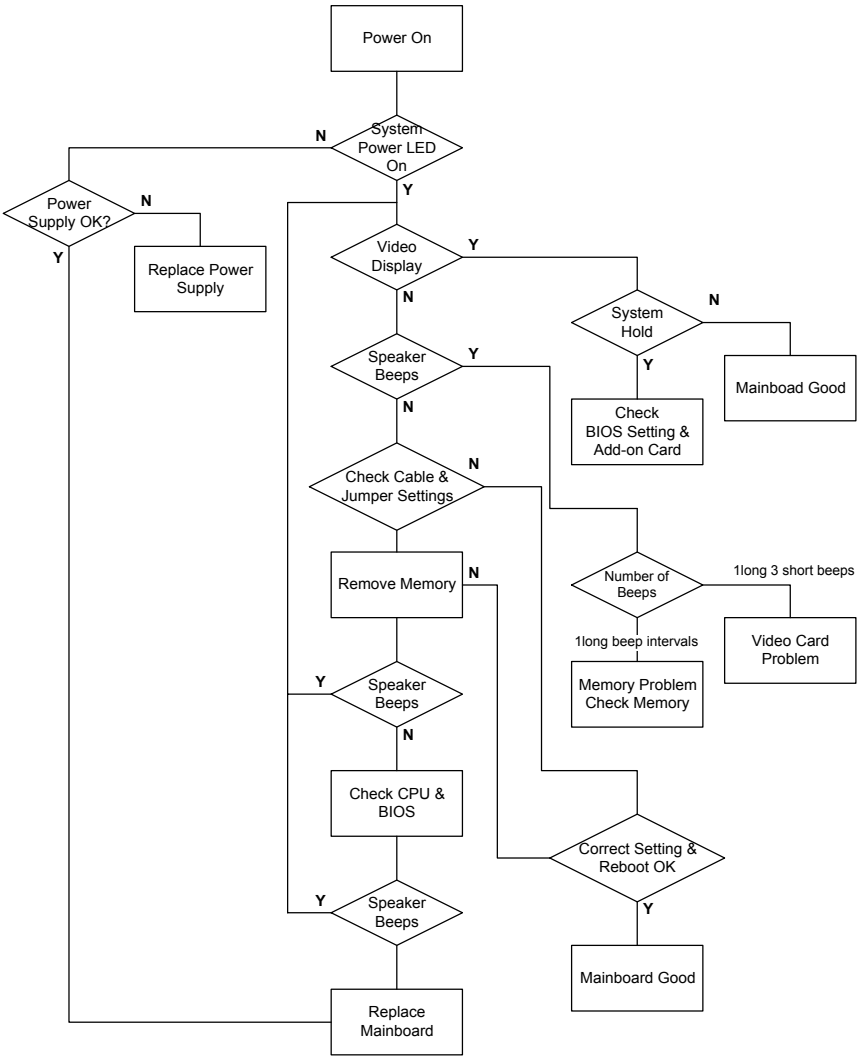
If you encounter a memory error, follow the procedures below.

Step 1: Check to determine if the DIMM modules are improperly installed.
Step 2: Determine if different speeds of DIMMs have been installed and verify that the BIOS setup is configured for the fastest speed of RAM used. It is recommended to use the same RAM speed for DIMMs in the system.
Step 3: Check for bad DIMM modules or chips.

Losing the System Setup Configuration

Step 1: Check the jumper settings. And make sure you are using a high quality power supply. A poor quality power supply may cause the system to lose the CMOS setup information.
Step 2: If you still cannot resolve the problem, contact your vendor for repairs.

7.3 Troubleshooting Flowchart



7.4 Technical Support

In the event of not finding the solution for your problem, please contact our technical support staff, or E-mail to <service@leadtek.com.tw>, with the following information:

Product name: It will be easier for our staff to answer your question if you know the name of the product. The name of the product is displayed during system booting.
Software driver version: We are updating the version of utilities and drivers from time to time, so it will be a great help for us to understand where the problem lies in. The version number is printed on the diskette label.
Motherboard manufacturer, BIOS version and chipset: It is important to know who manufactured your motherboard, which system BIOS are you using, and what types of chipset are being used on your motherboard.
Computer type and speed: The type of processor you are using and its speed.
Monitor manufacturer and model: Please advise the type and supporting mode of the monitor you are using.
Detailed description of your problem: Please describe in detail all the problems you encountered, including the kind of software and hardware you are using, and the contents of your system files.

7.5 FCC Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communi-cations. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.
- Shielded interface cables must be used in order to comply with emission limits. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

7.6 Limited Warranty

Leadtek warrants to the original purchaser of this product that it shall be free of defects resulting from workmanship or components for a period of one (1) year from the date of sale. Defects covered by this Limited Warranty shall be corrected either by repair or, at Leadtek's discretion by replacement. In the event of replacement, the replacement unit will be warranted for the remainder of the original one (1) year period or thirty (30) days, whichever is longer. THERE ARE NO OTHER ORAL OR WRITTEN WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO THOSE OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

This Limited Warranty is nontransferable and does not apply if the product has been damaged by negligence, accident, abuse, misuse, modification, misapplication, shipment to the Manufacturer or service by someone other than the Leadtek Transportation charges to Leadtek are not covered by this Limited Warranty. To be eligible for warranty service, a defective product must be sent to and received by Leadtek within fifteen (15) months of the date of sale and be accompanied with proof of purchase. Leadtek does not warrant that this product will meet your requirements; it is your sole responsibility to determine the suitability of this product for your purposes. Leadtek does not warrant the compatibility of this product with your computer or related peripherals, software.

LEADTEK'S SOLE OBLIGATION AND LIABILITY UNDER THIS WARRANTY IS LIMITED TO THE REPAIR OR REPLACEMENT OF A DEFECTIVE PRODUCT. THE MANUFACTURER SHALL NOT, IN ANY EVENT, BE LIABLE TO THE PURCHASER OR ANY THIRD PARTY FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES OR LIABILITY IN TORT RELATING TO THIS PRODUCT OR RESULTING FROM ITS USE OR POSSESSION.

This limited warranty is governed by the laws of Taiwan.